

ABSTRACT

In the basic form of merge processing, that is sort  
5 processing, two sorted partial data string pairs are input, and  
one series of sorted data string is output as a whole.  
Conventionally, high parallelism of this processing has been  
considered difficult. A method for dividing a sorted partial  
data string pair into a plurality of segment pairs, if invented,  
10 would allow an advanced parallel merge processing to be  
performed even in a homogeneous configuration parallel computer  
system, such as a tightly coupled multi-processor sharing a main  
storage. The basis of merge processing is processing to input a  
pair of two sorted partial data strings and to output one sorted  
15 data string. A method for sub-dividing this input data string  
pair into arbitrary data string pairs from the first part of  
both data strings of the input data string pair, while  
considering the magnitude of the key value, has been invented.  
This method, if implemented, enables a merge operation at a  
20 parallelism  $k$  if the data string is divided into any number of  
data string pairs, for example,  $k$  sets of data string pairs, and  
if merging in descending order (merging the data string pair  
from the first part to the last part thereof, and outputting it  
from the first part to the last part in the output area) and  
25 merging in ascending order (merging the data string pair from  
the last part to the first part thereof and outputting it from  
the last part to the first part in the output area) are used, a  
merge operation with a parallelism  $2k$  can also be possible.